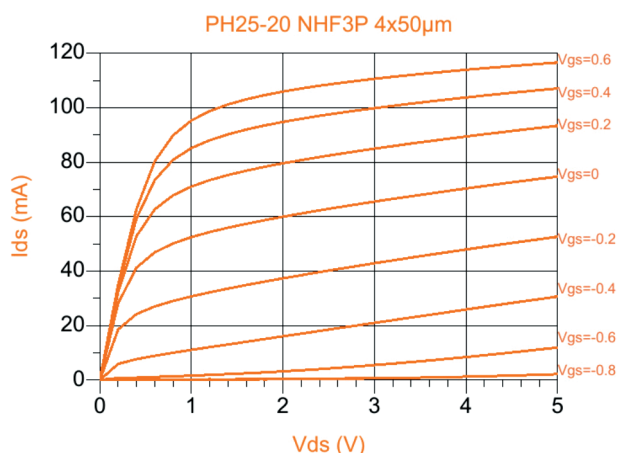
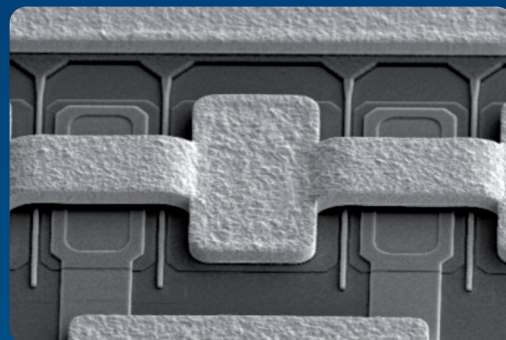


The UMS 0.25 μ m GaAs Very High Frequency pHEMT Process

PH25-20 process is optimized for low noise up to 60GHz. The second generation features a thinner substrate (70 μ m instead of 100 μ m), which allows additional 2-ports transistor topologies with individual source vias. The process includes two metal interconnect layers, precision TaN resistors, high values TiWSi resistors, two densities of MIM capacitors and MIM over via capacitors, air-bridges, hot-vias and via-holes through the substrate.

Overcoating layer is available as an option. Hot vias are also available for advanced packaging.



PH25-20 offers a very wide range of applications among them:

- Point-to-point communications
- Satcom
- Drivers and LNA up to Q band
- ...

Process main characteristics

Element	Parameter	Typical Value	Condition
FET	I_{dss} (mA/mm)	340	$V_{ds}=2.5V$, $V_{gs}=0V$
	G_{m_max} (mS/mm)	530	$V_{ds}=2.5V$, $V_{gs}=0V$
	V_{bds} (V)	7.5	$I_{ds} = I_{dss} / 100$
	Noise Figure (dB)	0.6 / 2	@ 10 / 40 GHz
MIM Capacitor	Density (pF/mm ²)	250	@ 1 MHz
MIM Capacitor DHD		625	@ 1 MHz
Resistor	TaN (Ohm/sq)	30	
	TiWSi (Ohm/sq)	1000	
	GaAs (Ohm/sq)	120	
Substrate	Thickness (μ m)	70	





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